CHAPTER 61

BIG TREE SILVICULTURE

The Governor's Committee to Review Timber Management Policies on State-Owned Lands, March 1974, recommended that "Big Tree Silviculture" should govern the management of state forests in recognition of the recreational and aesthetic values of old growth and big trees. However, "old growth" has important ecological implications that are not yet fully understood for Lake State forests. The presence of big trees is only one characteristic of old growth forests. The guidelines in this chapter apply only to the maintenance of stands with large diameter trees, and not to the ecological structure of old growth forests. These guidelines may be modified in the future as we improve our understanding of the structure and function of old growth forests on various sites.

Big tree silviculture, as defined here, is to govern the management of selected types on state forests, regardless of the aesthetic zone in which the type falls. It is to achieve the objective of aesthetic desirability. This objective will take precedent over maximizing timber yields.

Big tree silviculture may be considered for selected sites on other Department lands and on county forests. Selected sites would be identified in the management plan for the property.

The following guidelines and concepts will govern the implementation of big tree silviculture on state lands:

A. **Cover Types**

Big tree silviculture will apply to the following cover types on the corresponding habitat types. These cover type species have the silvical characteristics that permit individual tree selection and growth to large diameters.

Cover type	Large diameter growth for the indicated cover type is possible on these habitat types
White pine	AQV, PMV, PAm, AVVib, AQVib, AVDe, ATM
Red pine	AQV, PMV, PAm, AVDe
Northern hardwood	ATM, ATD, AViO, AH, ACaCi
Hemlock-hardwood	ATM, ATD, TMC, AFD
Red oak	AVVib, AQVib, AVDe

B. **Rotation Age**

The rotation age normally used to achieve maximum timber production will no longer be used in big tree silviculture types. The rotation age will be extended to approach biological maturity.

C. **Management**

Big tree silviculture will have to be applied judiciously to prevent succession to undesirable cover types, to impede regeneration of less desirable species, to maintain stand quality, and to guard against excessive volume losses.

The following guidelines will govern the marking and harvesting of big tree silviculture types:

1. Risk and Vigor

The risk and vigor of individual trees will govern the determination of which trees are to be removed from the type. DBH is not to be used as a factor in determining which trees to mark. Timber management guidelines that specify

a maximum diameter based on economic relationships will not be employed in big tree silviculture types. See Chapter 24 for marking guides.

2. Cutting Cycle

The normal cutting cycle of approximately ten years for even-aged types and ten to fifteen years for all-aged types, is to be continued. Consideration can be given to shortening the cutting cycle in young stands and extending the cutting cycle in older stands to lessen the impact on residual timber and aesthetic quality.

3. Residual Basal Area Levels

The residual basal area levels in even-aged types should be lower than the usual basal area levels used to achieve maximum timber production. Lower basal area levels in big tree silviculture types will help to achieve larger diameter growth in a shorter period of time.

Even-aged types should be marked to a basal area level approximately 20 square feet lower than normal timber management levels, but no lower than the B-curve level on the stocking chart for the managed species.

All-aged residual basal area levels should be 10-20 square feet below normal timber management basal area levels.

4. Regeneration Cutting

Regeneration cutting of even-aged big tree silviculture types will be determined by the risk and vigor of the stand as a whole as it approaches pathological maturity on that site. No firm rotation age can be prescribed because of stand variation in the site quality-rotation age relationship.

On better than average sites, it is anticipated that rotation ages will exceed 130 years for white pine, 130 years for red pine, 100 years for oak, and various ages for the several species in northern hardwood and hemlock- hardwood types.

D. **Individual Trees or Clumps**

Individual trees or clumps of red pine, white pine or hemlock should be treated in a similar manner as their respective forest types. When stands other than those designated for big tree silviculture are marked or designated for cutting, consider the risk and vigor of the individual big tree species within the stand, in relation to the cutting cycle. For example, individual pines scattered through an aspen stand that is designated for harvest, should be viewed in relation to their ability to remain through the next aspen rotation without undue loss or degeneration. If risk and vigor of an individual tree is projected to be poor over the next aspen rotation period, the pine should be harvested with the aspen.